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ABSTRACT

Research has associated high levels of private self-consciousness (PSC) with accurate self-knowledge and with behavior consistent with one's attitudes. A study by Buss and Scheier reported that privately self-conscious persons are more susceptible to attribution bias, the self-focus of such persons leading them to attribute their positive and negative outcomes to internal causes. Three studies, each a near exact or conceptual replication of that research, were conducted to examine this hypothesis. In the first study, undergraduates who tested high (N=40) or low (N=40) in PSC were asked to imagine themselves in eight hypothetical situations whose outcomes were either positive or negative and to estimate the degree of personal responsibility they would assume for the outcomes. In the second study, high PSC (N=56) and low PSC (N=62) undergraduates completed the Attributional Style Questionnaire while imagining themselves in a number of different success or failure situations and then while imagining another person experiencing the positive and negative outcomes. In the third study, a conceptual replication of Buss and Scheier was conducted with high (N=55) and low (N=46) undergraduates using an actual rather than a hypothetical outcome situation. In none of these studies did persons high in PSC make more internal attributions for events than those low in PSC. Various replication statistics were conducted, each showing that the attributional bias phenomenon reported by Buss and Scheier could not be corroborated. (NRB)

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Another Look at the Relation Between Private Self-Consciousness and Self-Attribution

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Abstract

The clear picture that emerges from studies of private self-consciousness is that this variable is associated with detailed and accurate self-knowledge. High levels of private self-consciousness also lead to behavior that is consistent with one's attitudes. In light of this characterization of the privately self-conscious person, it is surprising that one study reported that such persons are more susceptible to an attributional bias. Buss and Scheier (1976) suggested that the habitual self-focus of private self-conscious persons would lead them to attribute their positive and negative outcomes to internal causes, and their data support these predictions. This potential contradiction in the literature was examined in three studies. Each study was a near exact or conceptual replication of the experiment of Buss and Scheier. In none of the studies did persons high in private self-consciousness make more internal attributions for events than those low in private self-consciousness. Various replication statistics were conducted, each showing that the attributional bias phenomenon reported by Buss and Scheier cannot be corroborated. The theoretical implications of these findings were discussed.

Another Look at the Relation Between Private

Self-Consciousness and Self-Attribution

In 1975 Fenigstein, Scheier, and Buss introduced a personality scale to measure habitual tendencies to focus on one's internal thoughts, feelings, and motives. Since that time, studies have identified a number of cognitive and behavioral differences between those scoring high and low on this private self-consciousness (PSC) scale. Several studies, for example, have found that high PSC individuals listed more adjectives when describing themselves than did low PSC persons (Franzoi, 1983; Turner, 1978a). These data suggest that the high PSC individual has a more detailed self-understanding than a person who typically does not self-reflect, the low PSC person.

Research has also shown that the correlation between self-reports and subsequent behavior is substantially greater for high than for low PSC subjects (Scheier, Buss, & Buss, 1978; Turner, 1978b). This body of research indicates that high PSC individuals have a more accurate self-understanding, one that apparently affects their behavior rather directly. Other research has shown that one consequence of this more accurate self-understanding is that high PSC persons are less susceptible to misleading suggestions concerning their internal bodily states. Scheier, Carver, and Gibbons (1979) found that those high in PSC were less affected by suggestions about their taste reactions and more accurate in reporting their actual internal state than were subjects low in PSC. Finally, habitual private self-attention also appears to result in a closer match between self-evaluations and evaluations by others. In a study investigating self-concept differences, Franzoi (1983) found that while the self-evaluations of high PSC subjects did not differ from those of their close friends, there was a significant discrepancy between

evaluations made by the low PSC subjects and their friends. The general picture that emerges from these and other studies is that private self-consciousness is positively associated with a more detailed and accurate knowledge of internal self-aspects, as well as with a self-concept that is more in line with external reality (i.e., others' perceptions).

Standing in sharp contrast to this characterization of PSC individuals are the findings of an influential self-attribution study conducted by Buss and Scheier (1976). Interestingly, the results of this study suggest that high PSC persons are more likely to engage in an attributional bias when accounting for their own behavior than are individuals low in PSC. In this study, subjects were asked to imagine themselves in several positive and negative hypothetical situations. These subjects then estimated the degree of personal responsibility that they would assume for the events if they had actually happened. Buss and Scheier's findings indicated that high PSC subjects were more likely to attribute responsibility to themselves for both positive and negative outcomes than were subjects low in private self-consciousness.[1] The authors pointed out that their results, using a measure of habitual private self-awareness (PSC), were consistent with Duval and Wicklund's (1973) research that investigated the effects of situational private self-awareness (SA) on self-attribution bias. Duval and Wicklund (1973) asked their subjects to respond to these same hypothetical situations while self-attention had been aroused temporarily by the presence of a mirror. Their data showed that subjects were more likely to make an internal attribution for both positive and negative outcomes than subjects whose self-awareness had not been aroused.

The apparent congruence of this "situational" self-awareness study (see also, Arkin & Duval, 1975; Duval, Duval, & Neeley, 1979) with the habitual self-consciousness investigation (Buss & Scheier, 1976) make it tempting to conclude that similar effects are theoretically consistent. There are, however, several reasons why drawing such a conclusion is problematic. First, some studies have been unable to replicate Duval and Wicklund's (1973) attributional biasing effects of situational self-awareness. Federoff and Harvey (1976) and Nadler (1983), for example, found that the internal attribution effect due to temporarily induced self-awareness occurred only after success and not after failure. This asymmetrical effect of success and failure may suggest that self-awareness makes one more aware of the need to enhance self-esteem via a self-serving bias effect (cf. Arkin, Cooper, & Kolditz, 1980; Weary-Bradley, 1978; Zuckerman, 1979). Regardless of the interpretation of these studies, the effects reported would, of course, preclude a general internality attribution bias due to situational self-awareness (SA).

The second reason one may want to exercise caution in drawing conclusions about similarity of attribution effects between situational self-awareness and habitual PSC relates to the way that the former is operationalized. Situational or temporary self-awareness is often aroused by placing mirrors in front of subjects while they perform a task. It is generally assumed (e.g., Carver & Scheier, 1981) that mirror manipulation induces private self-awareness. It is quite possible, however, that such a manipulation could arouse public self-awareness in addition to the private form.[2] Since private self-consciousness is theoretically and empirically distinct from public self-consciousness (cf. Fenigstein et al., 1975), self-awareness manipulated

by a mirror could confound these two types of self-awareness. Thus, possible nonequivalence of temporary and habitual self-awareness manipulations, in addition to the inconsistent effects of self-awareness on attributions, make the close scrutiny of Buss and Scheier's study important.

Our survey of the literature revealed that Buss and Scheier's study of the attributional biasing effects of PSC is the only one of its kind. Despite this fact, however, the results of the study have not gone unnoticed. Buss and Scheier's study has been cited in a wide variety of publications, including social psychology textbooks (e.g., Sherrod, 1982), speciality books and chapters (e.g., Buss, 1980; Carver & Scheier, 1981; Harvey, Ickes, & Kidd, 1981; Wegner & Vallacher, 1980), and in many journal articles (e.g., Brockner, Gardner, Bierman, Mahan, Thomas, Weiss, Winters, & Mitchell, 1983; Gibbons, Carver, Scheier, & Hormuth, 1979; Scheier, Buss, & Buss, 1978). On this basis alone, therefore, it deserves repeating since replication is itself a basic tenant of scientific advancement (e.g., Aronson & Carlsmith, 1968; Campbell & Jackson, 1979) and also because replication is a topic of recent interest among personality researchers (cf. Schwartz & Dalgleish, 1982).

Perhaps the most important reason for replicating this study, however, is a theoretical one. As we have shown earlier, we have much reason to expect that persons high in private self-consciousness should not illustrate an attributional bias of the sort described by Buss and Scheier (1976). These researchers suggested that because of their habitual self-focus, high PSC persons should be biased toward more internal causal ascriptions for their outcomes than those low in PSC. The research that we have reviewed, however, indicates that those high in PSC have a detailed and accurate understanding of their behavioral tendencies, and thus should not be susceptible to a self-

attribution bias.

Thus, for these reasons we conducted several replications of the Buss and Scheier study. One possible outcome of our studies is that we could replicate the Buss and Scheier results in a variety of settings. If this is the case, then researchers should be aware that the considerable self-knowledge amassed by high PSC persons can sometimes be biasing in its effects (cf. Franzoi, 1983; Gibbons, 1983; Scheier et al., 1978; Scheier et al., 1979; Turner, 1978b). Alternatively, repeated inability to replicate the results of Buss and Scheier (1976) would lead us to conclude that the attributional bias phenomena is not robust, and hence the Buss and Scheier study would not contradict the general characterization of the high PSC individual in the literature.

Study 1

In this first study we conducted a conceptual replication of Buss and Scheier (1976). Using the same methods and procedures employed by these authors to study private self-consciousness effects, we sought to replicate the attributional bias phenomenon that they reported. Subjects differing in levels of PSC were asked to imagine themselves in a number of different hypothetical situations whose outcome was either positive or negative. Following from Buss and Scheier, we expected to find that persons high in PSC would make more internal attributions than would individuals low in PSC, regardless of situational outcome.

Method

Subjects. Several weeks prior to the actual experiment, 450 undergraduate volunteers from the University of California at Davis were administered the Self-Consciousness Scale (Fenigstein, et al., 1975). As in

Buss and Scheier, the private self-consciousness subscale of the larger inventory was used to select subjects. The highs (n = 40) were randomly selected from the top third of the distribution of PSC scores and the lows (n = 40) from the bottom third. A one-way analysis of variance revealed that these two groups of subjects represent two distinct levels of self-consciousness ($F_{(1,78)} = 646.60$).

Procedure. All subjects were tested individually. Subjects arrived at the lab and were seated at a desk and given a response sheet. The experimenter explained to subjects that they would be asked to respond to eight hypothetical situations. In each situation, they were asked to imagine themselves as a participant and to estimate the degree of personal responsibility they would assume for the outcome, from 0 to 100%. As in Buss and Scheier, eight situations were employed in the study, four describing positive outcomes and four describing negative outcomes. The eight situations were presented in a random order.

Results and Summary

Subjects made attributions for four positive and four negative hypothetical situations. A positive and negative attribution index was formed by summing and averaging the respective scores. These indexes were analyzed using a 2-way repeated measures analysis of variance (see Table 1). The between-subjects factor was private self-consciousness (low/high) and the within-subjects factor was situational outcome (positive/negative). The only significant effect to emerge from the ANOVA was a main effect due to outcome ($F_{(1,78)} = 93.57$, $p < .001$). Attributions for positive outcomes (M = 64.78) were more internal than those made about negative outcomes (M = 44.39). The effects due to both PSC (F = .13) and the interaction effect (F = .12) were

not significant.

This study represented a conceptual replication (cf. Campbell & Jackson, 1979; Rosenthal, 1979) of Buss and Scheier (1976). Based on their findings, we should have found that persons high in PSC attributed the cause of events more internally than individuals low in PSC. Our data, however, provided no support whatsoever for such a contention. No significant effects involving PSC were found. We did, however, replicate the self-serving bias effect (Arkin et al., 1980; Weary-Bradley, 1978; Zuckerman, 1979) found in the literature. That is, regardless of their level of private self-consciousness, subjects assumed more personal responsibility for positive than negative outcomes.

Study 2

We were unable to corroborate the results of Buss and Scheier (1976) in our first study. As a conceptual replication of their design, this first study could seriously reduce the confidence in the Buss and Scheier results. Before embracing such a conclusion, however, several explanations of the inability to corroborate the internal attribution bias effect must be ruled out.

One such explanation is the reliability and validity of our attribution measure. The attribution scale used by Buss and Scheier was a subset of a somewhat larger scale used by Duval & Wicklund (1973) for their study of the effects of self-awareness on attributions of causality. To our knowledge, this form of the scale has not been used by other researchers to study attributional reactions due to PSC. Thus, one explanation of our inability to replicate Buss and Scheier is that the validity of the attribution measure is unknown and perhaps questionable. Indeed, in using this scale Buss and

Scheier were themselves unable to replicate the self-serving bias effect that seems to be quite robust (Arkin, et al., 1980; Weary-Bradley, 1978; Zuckerman, 1979). In fact, instead of a self-serving bias effect, whereby people accept more responsibility for positive over negative events, an exactly opposite effect was found. These investigators reported that subjects gave more internal attributions after failure rather than after success. Buss and Scheier themselves (1976; p. 466) speculated that the construct validity of the scale could be problematic in this regard. Thus, either our null results or the significant results of Buss and Scheier's might be a chance finding due to the questionable validity of the attribution scale. In addition, the reliability of their internal attribution scale is not known. It is clear that if the scale has low reliability, this shortcoming could account for the discrepant results across studies. To combat these potential problems, in Study 2 we employed a frequently used scale, the Attributional Style Questionnaire (ASQ; Peterson, Semmel, von Baeyer, Abramson, Metalsky, Seligman, 1982). This scale has respectable reliability (Golin, Sweeney, & Shaeffer, 1981; Peterson et al., 1982) and some good validity data (Peterson et al., 1982; Sweeney, Bailey, & Anderson, 1984).

A second reason for the inability to find an internality attribution effect due to PSC might be due to the repeated-measures design employed by Buss and Scheier (1976) and our first study. Perhaps the subjects in our study experienced a carry-over effect (cf. Keppel, 1973, pp. 395-400) that made them aware of our particular attributional hypotheses. Although this explanation is not very likely, this effect in combination with other design features could have produced the null results we found in Study 1. Thus, in Study 2 we made story outcome on the ASQ a between-subjects variable.[3]

In addition, Study 2 included several new dependent variables that could be seen as falling within a logical extension of the Buss and Scheier argument. These authors suggested that since the privately self-conscious person habitually attends to inner thoughts, plans, and motives, they should as a result be biased toward internal explanations of their behavior. A small extension of this argument could apply to ratings of consistency or stability of causal attributions. If Buss and Scheier's argument is correct, these habitually self-focused persons should also be biased toward stable explanations of their behavior. Since, by definition, they habitually self-focus and supposedly as a result offer consistently internal explanations of their behavior, high PSC persons should also make more stable attributions for their behavior as well.

A final extension of the Buss and Scheier argument deals with attributions made about another's behavior. In particular, if attributional differences between low and high PSC persons results from the habitual <u>self-focus</u> of the latter group, then these differences should not extend to the attributions about <u>others'</u> outcomes.

To examine the above considerations, we had subjects complete the ASQ in two different ways. First, subjects completed the scale while being asked to imagine themselves in a number of different success or failure situations. They were also asked to complete the scale while imagining another person experiencing the positive or negative outcomes. If the Buss and Scheier (1976) analysis is correct, we should find a main effect for private self-consciousness, with high private self-conscious persons making more internal attributions than low privately self-conscious individuals. In addition, an interaction between self-consciousness and self-other outcomes should be

found, such that the attributions of high privates for self but not others' outcomes would be internal in locus of causality. These same predictions would apply to the second dependent measure, the stability of the causal factor.

Method

Subjects. One hundred and ninety three students from an introductory psychology course at the University of Pittsburgh received class credit for their participation in this study. As in Study 1 and Buss and Scheier (1976), the private self-consciousness scale was used to select subjects for eventual analysis. The Highs (n = 56) were those subjects in the top third of the distribution of private self-consciousness scores and the Lows (n = 62) were in the bottom third. A one-way analysis of variance revealed that these two groups of subjects represent two distinct levels of self-consciousness ($F_{(1,116)} = 569.96$).

Procedure. Subjects participated in small groups of ten or fewer. Subjects were asked to complete a packet of several short questionnaires. These questionnaires included: (a) the Self-Consciousness scale (Fenigstein et al, 1975), (b) the Attributional Style Questionnaire (ASQ; Peterson et al, 1982), and (c) a modified version of the ASQ that asked subjects to make attributions about another's behavior. The Self-Consciousness Scale was described in Study 1. Briefly, the ASQ involves short descriptions of 12 situations, six describing good outcomes (g., "You do a project that is highly praised") and six describing bad outcomes (e.g., "You have been looking for a job unsuccessfully for some time"). Each subject is asked to write down a major cause of each outcome and then rate the cause, using 7-point scales, along internal-external (1=totally due to me, 7=totally due to the other

person or circumstances) and unstable-stable (1=will never again be present, 7=will always be present) dimensions. In this study, however, subjects were randomly presented with either positive or negative outcome descriptions. Finally, the ASQ was modified so that subjects made attributions about a common target person (cf. Sweeney, Shaeffer, & Golin, 1982). The order of the questionnaires was counterbalanced among subjects in a Latin Square design by employing three different test orders.

Results and Summary

A 3-way repeated measures analysis of variance was computed on the internal attribution measure (1 = internal, 7 = external). The two between-subjects factors were PSC (low or high) and outcome on the ASQ (positive or negative). A third factor in the ANOVA was a within-subjects variable, attribution type (self or other attribution). The only significant main effect to emerge from the ANOVA was due to outcome ($F_{(1,114)} = 29.10$, $p < .0001$). Attributions about positive outcomes ($\underline{M} = 2.15$) were more internal than those made about negative outcomes ($\underline{M} = 3.34$), thus replicating Study 1 and the reliable self-serving bias effect (see Table 2). The main effect due to self-other attribution showed a borderline but nonsignificant effect ($F_{(1,114)} = 2.20$, $p < .14$). The main effect due to private self-consciousness was not significant ($F_{(1,114)} = .41$). Finally, the only interaction effect to approach significance was due to an attribution type (self/other) by outcome effect ($F_{(1,114)} = 1.78$, $p < .19$).[4]

A 3-way repeated measure ANOVA was also computed on the stability attribution measure (1 = unstable, 7 = stable). As with the internality measure, the only significant main effect to emerge from the ANOVA was due to outcome ($F_{(1,114)} = 129.39$, $p < .001$). This effect shows that attributions

about positive outcomes ($\underline{M}$ = 5.05) were more stable than attributions made about negative outcomes ($\underline{M}$ = 3.10). The main effects for both self-other attribution ($F_{(1,114)}$ = .32) and private self-consciousness ($F_{(1,114)}$ = .56) were not significant. The only interaction effect to produce significant results was due to an attribution type X outcome effect ($F_{(1,114)}$ = 9.32, $p < .001$). Apparently, this interaction effect was due to a larger difference in the stability attributions for others' positive and negative outcomes ($\underline{M's}$ = 5.23 and 2.86, respectively) than for attributions about positive and negative self-outcomes ($\underline{M's}$ = 4.88 and 3.36, respectively).

Based on these analyses, it was again concluded that we had failed to corroborate the findings of Buss and Scheier (1976). On all of the attributional dependent measures, individuals who were low and high on private self-consciousness scarcely differed. In fact, in no case did an F value due to private self-consciousness exceed one. This result occurred even after building into the design what we thought were several methodological improvements over the other studies, including a well-validated scale of attributional style and the addition of several new dependent measures. Our design also included a factor that assessed subject's self-attributions and their attributions about outcomes of others. Using the Buss and Scheier argument, we reasoned that the biased attributional style found for high PSC persons would not extend to their attributions for others' outcomes. Thus, using their argument, we expected an interaction between self-consciousness and self/other attribution. Although we did find some effects due to self/other attribution, this variable did not interact with private self-consciousness.

Study 3

Our third study represented a replication of the design of Buss and Scheier (1976) under somewhat different conditions. In Study 1 we conducted a conceptual replication (cf. Rosenthal, 1979) of Buss and Scheier's design with disappointing results. With Study 2 we again duplicated the design of Buss and Scheier, while including several methodological improvements and some new, but conceptually similar dependent measures. Once again, however, we did not find that high private self-conscious persons are prone to an attributional bias of the sort described by Buss and Scheier. In Study 3 we sought to extend the earlier designs to a conceptually similar situation, a setting that would address yet another reason offered for our inability to replicate in both Study 1 and 2.

It should be noted that in the first two studies, we employed hypothetical outcomes in order to assess subjects' attributional reactions. It could be argued that such an uninvolving task is likely to produce unreliable results. Variables like the power and presence of the experimenter are important factors in such a situation, and ones that can alter the strength of the resulting effects. If, for example, a motivating experimenter can increase the subject's interest, involvement, and perceived importance of the experiment, a more favorable result could occur. A less diligent experimenter may not obtain such results in an otherwise uninvolving paradigm. This line of argument suggests that in uninvolving situations like the ones employed in Buss and Scheier and Studies 1 and 2 of the present paper, an inconsistent pattern of effects across studies may be expected (cf. Federoff & Harvey, 1976). Thus, before accepting the conclusion that the attributional bias effect for PSC persons is not a robust phenomenon, we sought to rule out subject interest/involvement as a possible mediator.

To address this question of subject involvement, we undertook a conceptual replication of Buss and Scheier using an actual instead of hypothetical outcome situation. After receiving feedback about their performance on a midterm examination in an introductory college course, student's judged how well they did on the exam and then were asked to make attributions about their performance. Presumably, most subjects were relatively ego-involved in this outcome situation. The results obtained from this study, therefore, could directly address the lack of subject involvement argument posed as an explanation of the inability to reproduce the results of Buss and Scheier (1976).

The definition of a positive or negative outcome on the attributional scales used in Studies 1 and 2 was determined independent of the subject. In this third study, however, we used two different methods for ascertaining outcome on the midterm exam. First, subject's objective standing relative to their classmates was used to define a positive or negative outcome. Second, the subject's own subjective estimate of how well they did was used to define the two levels of outcome. If both measures produced results similar to those Studies 1 and 2, we would have further evidence against an attributional bias on the part of high PSC persons. If our results support those of Buss and Scheier's, using either definition of outcome, then an assessment of the boundary conditions of this attributional bias effect would be in order. We could perhaps conclude that the internal attribution bias could more reliably be found in personally involving situations than in hypothetical situations.

In addition to the above design improvement, we again added the stability attribution question to the internal attribution dependent measure. If Buss and Scheier's hypothesis is tenable, then there should be differences between

PSC groups in the stability of their ascribed outcomes. Finally, we included a different, but logically similar way to assess internality of attribution in this study. That is, in addition to directly assessing the internality of a subject's attribution, we also asked them to make a judgment of control over their exam performance (cf. Peterson, 1979). Once again, if high PSC persons are biased to make internal attributions for outcomes, they should also perceive themselves as having more control over those outcomes than low PSC persons.

Method

Subjects. One hundred and forty five student volunteers from an introductory psychology course at Indiana University served as subjects. As in the first two studies, the private self-consciousness scale was used to select subjects for eventual analysis. As before, the highs (n = 55) were those subjects in the top third of the distribution of PSC scores and the lows (n = 46) were in the bottom third. A one-way analysis of variance revealed that these two groups of subjects represent two distinct levels of private self-consciousness, F (1,99) = 444.62.

Procedure. Prior to participating in the study, students received feedback regarding their performance on a psychology midterm exam that accounted for 25% of their course grade. During the next class meeting, as part of both an informal course evaluation and a voluntary class exercise, students completed a questionnaire. This form included items that asked about the students general perception of their performance on the exam and attributions for their particular outcomes. The questionnaire also included several standard personality scales, including the private self-consciousness scale. Prior to completing the questionnaire, students were assured that

their responses would not be scrutinized in an individual way. Students were asked, however, to place their social security numbers on the answer sheet. This procedure allowed us to provide feedback to those who requested their scores, and it allowed us to match questionnaire responses to exam scores without compromising confidentiality.

Results

Objectively Defined Outcome. In our initial analyses of the data, we used the subjects' exam scores to define success and failure. This procedure is roughly equivalent to the method of defining success and failure used in Buss and Scheier and Studies 1 and 2, and is quite common in classroom studies of attributional reactions to examination feedback (cf. Freize, Francis, & Hanusa, 1982; Simon & Feather, 1973; Sweeney, Moreland, & Gruber, 1982). The scores on this 50 point exam ranged from a low of 27 to a high of 48. Using the mean exam score (M = 38.48), we separated into groups those subjects who scored above the mean (positive outcome, n = 49) and those who scored below the mean (negative outcome, n = 52).

Using the groupings specified above, a series of 2 (low/high PSC) x 2 (positive/negative outcome) analyses of variance were performed. First, subjects' responses to the internality attribution question were analyzed ("Think for a minute about why you scored the way you did on the exam. Then, rate those reasons on the following scale: 1 = something due to me, 5 = something due to the environment or other persons"). No significant effects were found on this dependent measure (see Table 3). The F-values for the PSC, outcome, and interaction effects were: .91, 1.71, and .04, respectively.

A second 2 x 2 ANOVA was computed on the subjects' ratings of their personal control over the exam outcome (1 = something that I could control, 5

= something that was beyond my control). This analysis revealed a near conventionally significant effect due to outcome ($F_{(1,97)} = 3.45$, $p < .06$). Subjects in our positive outcome group (M = 2.09) tended to perceive more personal control over that outcome than subjects in the negative outcome condition (M = 2.64). Also, although the effect due to PSC did not reach significance, a tendency toward significance was noted ($F_{(1,97)} = 2.29$, $p < .14$). This effect, however, was in the opposite direction to that reported by Buss and Scheier, with low PSC persons (M = 2.21) reporting having more control over the exam outcome than high PSC subjects (M = 2.49). The interaction effect for this perceived control measure did not approach significance.

A third ANOVA was conducted on subject's rating of the stability of the cause for their exam performance (ranging from 1 = something likely to happen in the future (stable), to 5 = something unlikely to happen in the future (unstable)). The ANOVA computed on this dependent measure revealed only one significant effect, that due to outcome ($F_{(1,97)} = 22.46$, $p < .001$). Subjects in the positive outcome condition (M = 2.61) saw the cause of their outcomes as more stable than subjects in the negative outcome condition (M = 3.81). The effects due to PSC (F = .04) and the interaction (F = .44) were not significant.[5]

Subjectively Defined Outcome. In the analyses reported thus far, success and failure were determined solely by the students' actual scores on the examination. This objective measure, however, may not correspond exactly to the students' own perceptions of their performance (cf. Frieze et al, 1982). In order to investigate the effects of subjective success and failure on the performance attributions of privatively self-conscious persons, a second

series of analyses was carried out. In these analyses, we used the subjects' own perceptions of success or failure to determine levels of outcome ("Do you consider your exam performance a success?" 1 = not at all, to 5 = very much). The mean score for this variable across all students (M = 2.46) was used to divide them into positive outcome (scores $\geq$ 3, n = 45) and negative outcome (scores $\leq$ 2, n = 55) groups.[6]

Using the above groupings, a series of 2 (low/high PSC) x 2 (positive/negative outcome) analyses of variance were performed (see Table 3). Again, we first analyzed the internal attribution dependent measure (1 = something due due to me, 5 = something due to the environment or other persons) and found no significant effects. The F-values for the PSC, outcome and interaction effects were 1.75, .94, and .30, respectively.

A second 2 x 2 ANOVA was computed on the subject's rating of their personal control over the exam outcome (1 = something I could control, 5 = something that was beyond my control), a measure highly related to the internal attribution question. This analysis revealed a significant main effect due to outcome ($F_{(1,96)} = 6.47$, $p < .01$). That is, subjects who interpreted their exam score as a positive outcome (M = 2.09) perceived more personal control over that outcome than subjects in our negative outcome (M = 2.72) group, apparently replicating the self-serving bias effect. No other significant effects emerged from the ANOVA, although a tendency for low PSC (M = 2.26) to judge that they had more control over their exam outcome than high PSC persons (M = 2.58) was noted, $F(1,96) = 2.17$, $p < .15$. The PSC x outcome interaction was not significant (F = .02).

The third and final dependent variable was the stability attribution measure [1 = something likely to happen in the future (stable), 5 = something

unlikely to happen in the future (unstable)]. The ANOVA computed on this measure revealed only one significant effect, that due to outcome, $F(1,96) = 13.98$, $p < .001$. This effect shows that subjects who perceived their exam performance as a positive event ($M = 2.72$) made more stable attributions than subjects who perceived their performance as a negative outcome ($M = 3.70$). The effect due to PSC ($F = .23$) and the interaction effect ($F = .14$) were not significant.

Summary of Results

Across the objective and subjective definitions of success and failure, we obtained surprisingly similar effects. In particular, regardless of how we defined outcome in this third experiment, we did not find any evidence of an attributional bias effect due to levels of private self-consciousness. Across the three different attribution measures we found that in no instance did the high private self-conscious subjects illustrate an attributional bias of the form described by Buss and Scheier (1976). Instead, we found only main effects due to the valence of the exam outcome. As in Study 2, we found that subjects were significantly more likely to attribute positive outcomes to controllable and stable causes than negative outcomes.[7] These effects were found in the context of a study designed as a strong test of Buss and Scheier's attributional bias effect. We reasoned that in this involving setting, wherein outcome was a real instead of hypothetical event, the attributional bias effect was particularly likely to occur (see Federoff & Harvey, 1976). Even under these conditions, however, we were once again unable to find an attributional bias effect due to level of private self-consciousness.

Replication Statistics

Several procedures have been developed that will permit a more detailed comparison of independent studies than we have thus far conducted. So far we have presented three experiments whose results are not in accord with those of Buss and Scheier (1976). We would now like to more directly compare our studies with that of Buss and Scheier using some recently developed replication statistics.

First, Humphreys (1980) suggests a significance test that will allow a direct comparison of the results of independent experiments. He points out that researchers interested in replicating an effect typically compute only a null hypothesis test for data produced by their replication study. If this test and the test in the original study are both significant, the researcher concludes that the effect was replicated. If the second study does not find a significant difference between means, the researcher usually concludes that the effect was not replicated. Humphreys (1980) suggests that instead of employing this strategy, the differences between means in the original and replication study should be compared directly with each other. Thus, in our study we would calculate the difference in attributional reactions of low and high PSC persons in our first study and then subtract this value from the difference between low and high PSC persons in the Buss and Scheier study. This difference over the pooled estimate of the variance in the dependent measure is distributed as t. If this t ratio for the difference between the differences is not sufficiently large to reject the null hypothesis, there has been no failure to replicate. If the t-test is significant, the pattern of mean differences across studies is different and a failure to replicate will have been noted (cf. Humphreys, 1980).

Using this test, we compared whether the pattern of means found by Buss and Scheier was the same as our results found in our nearly exact replication of that study (our Study 1). The t-test computed on the differences between studies was significant, t (130) = 2.43. This result indicates that we indeed did not produce the same pattern of results presented by Buss and Scheier (1976).

In addition to the above cross-study comparison, we also conducted a meta-analysis. Meta-analysis is a technique that permits a quantitative summary of a research literature. For every study that provides a test of an hypothesis of interest, the inferential statistic for that hypothesis test may be converted to a Z score. The Z scores are then averaged across studies and the significance of this overall value can be examined. A significant overall Z test provides one with evidence suggesting that the literature as a whole supports a particular research hypothesis (cf. Hunter, Schmidt, & Jackson, 1982; Rosenthal, 1978).

Table 4 presents the results of a meta-analysis conducted on these studies of the internality attribution bias due to PSC. The second column of this table presents the F-values reported by each study for the main effect of PSC on internality attributions. It should be noted that Study 3 of the present paper provides four different tests of the attribution bias - PSC link. Recall that outcome was defined both objectively and subjectively and that attributional bias was measured with an internal attribution question and an estimate of control measure. Thus, Study 3 provides four separate entries into our meta-analysis. The meta-analytic Z test for this literature showed that the overall effect was not significant, $Z = -1.07$. To provide a clearer picture of the relation between the degree of internality of one's attribution

and level of PSC, an effect size for each test of the hypothesis was computed (see column 5 of Table 4). As these data show, the correlations between PSC and internality of attribution were generally small (average r = -.033, s.d. = .158), with the exception of the value presented for the Buss and Scheier study.[8] In general, then, these replication statistics further convey the picture that we were unable to corroborate the results of Buss and Scheier (1976).

General Discussion

The purpose of this paper was to replicate the design of Buss and Scheier (1976), a study which found an internal attributional bias effect on the part of persons high in private self-consciousness. The argument made in the present paper was that the Buss and Scheier findings seem to be inconsistent with a growing body of research which shows that high PSC individuals have a relatively detailed and accurate understanding of their thoughts, motives, and behavioral tendencies. Because of this better self-understanding, it was reasoned that high PSC persons would not be susceptible to a self-related bias, and therefore would not consistently believe that they are responsible for events that occur to them.

Results of the three studies reported here show that high private self-consciousness is not associated with an internal attribution bias. In Study 1, using similar procedures and questionnaires employed by Buss and Scheier (1976), we failed to find an attributional bias effect due to PSC. In Study 2, a conceptual replication was undertaken that employed a standardized measure of attributional style and several other methodological improvements. Once again, however, no effect due to private self-consciousness on attributions was noted. In addition to assessing self-attributions, our study

also assessed attributions made for outcomes experienced by others. Buss and Scheier suggested that the habitual self-focus of high PSC persons would bias them toward internal, self-focused attributions of cause. Following this logic, we reasoned that if the PSC effect is specific to the self, it should not extend to the attributions made for others' outcomes. This predicted self/other attribution and PSC interaction was not found however, although we did find some borderline main effects due to this attribution measure. In Study 3, we tested Buss and Scheier's attributional bias effect in an involving "real world" setting, one in which subjects had a good deal of investment in the outcomes for which they made attributions. In this study, subjects varying in levels of PSC made attributions for their performance on a midterm college exam. Yet even in this important and self-involving situation, no PSC effect was apparent.

On the basis of the inability to find the attributional bias effect due to PSC in three separate studies, we suggested that the effect is not robust. In addition, however, we conducted several replication statistics that compared our research study with that of Buss & Scheier (1976). Inferential statistics that compared studies showed more directly that we were unable to corroborate the results presented by Buss and Scheier. In a complementary way, we showed that the combined effect (defined in a variety of ways) of PSC on attributions is not significant. That is, the combined research literature shows the effect of PSC on attributions to be unimportant. At least for the present, then, the burden of proof lies with those who wish to contend that an internality attribution bias effect due to PSC is a viable psychological phenomenon. We feel that it is safe to conclude that such a position is lacking empirical support.

The most restricted interpretation of our studies is that we have shown that a frequently cited effect appears to be nonexistent. Since Buss and Scheier's (1976) attributional bias effect appears to contradict a growing body of otherwise consistent literature, the data presented here are valuable. Simply put, our data show that the attributional bias effect does not represent an anomaly for self-consciousness theory. Instead, a likely explanation of the earlier finding is that the purported effect may be due to sampling or other types of error. The conclusion that high PSC persons do not exhibit an internal attributional bias is consistent with other research demonstrating that the high PSC person possesses an abundance of accurate and usable self-relevant information. Thus, the present study adds to the growing literature on self-consciousness theory.[9]

We believe, however, that our data may have implications that extend beyond this empirical addition to the literature. These implications, although admittedly speculative, have far-reaching effects for the proposed congruence of the self-consciousness and self-awareness constructs. We suggest that one reason the attributional bias effect received such acceptance for so long without close scrutiny was that it seemingly mirrored the effects due to situationally manipulated self-awareness (e.g., Duval & Hensley, 1976; Duval & Wicklund, 1973, and others). Buss and Scheier (1976) themselves expected similar effects of private self-consciousness (PSC) and self-awareness (SA) in their study of attributions. We suggest that researchers may in general be too quick to assume and expect similar effects due to PSC and SA. In large part this is due to the assumptions of prominent theorists in the area. Scheier, et. al. (1978), for example, state that "self-consciousness theory predicts that private self-consciousness should have the

same effect as mirror-induced self-awareness" (p. 135). A close examination, however, suggests that there may be fundamental differences between the situational and personality construct. These dissimilarities could lead one to expect different effects of self-consciousness and self-awareness on certain variables, or they may lead one to predict similar effects on other variables. Furthermore, even similar effects produced by the two constructs may result from different processes.

First, consider the case where researchers could expect different effects to be produced by PSC and SA. As in the present study of attributions, we might predict, based on previous research, that the habitual self-examination of persons high in PSC would allow for quick and almost effortless use of this extensive self-knowledge. High PSC individuals access to such an extensive and accurate self-knowledge base would lead us to expect that increasing levels of PSC would not result in an internality attribution bias. The effects due to temporary, situationally-induced self-awareness, however, might be expected to be different. Subjects forced by temporary, situational circumstances to self-reflect, are engaged in an activity that is relatively unfamiliar to them compared to those high in PSC. Because of this presumed inexperience in self-reflection, these persons could be fooled into believing themselves responsible for events that occur to them while in this temporary self-focused state. In essence, temporary self-awareness does not insure that one will have access to the type of organized body of self-knowledge that is available to those high in PSC when making a self-attribution.

As we also mentioned, there may be cases where PSC and SA can produce the same effects, but these effects may be due to different processes (cf. Hull & Levy, 1979). For example, in studies of attitude-behavior consistency

Gibbons, 1963; Scheier, et. al., 1978; Sherman & Fazio, 1983), persons high or low in PSC and persons whose self-awareness had or had not been temporarily manipulated (e.g., by the presence of a mirror) were probed about their attitudes on a certain topic. Later, in an ostensibly different experiment, their behavior on the attitude-relevant topic was observed. Results typically showed that both high PSC and SA result in a high attitude-behavior correlation. Does this mean that PSC and SA are simply different manipulations of the same self-focus construct? Not necessarily. On the one hand, it could be that simple focus of attention is the mediating variable for high attitude-behavior consistency. In this case, no differences would be expected between PSC and manipulations of SA, since both are viewed simply as different ways to operationalize self-focus. On the other hand, the content of the self-concept could be the crucial mediating variable between self and behavior (or other dependent measures). Since self-concept is a crucial factor in self-consciousness theory (where studies have found that an extensive and accurate body of self-knowledge has been amassed by high PSC persons), it is the content of the self-concept, not self-focus per se, that would account for an impressive attitude-behavior correlation. Since persons high in PSC habitually self-focus by definition, manipulation of attention to the self of these persons would not produce any additional effect. Thus, one could predict that focus of attention may drive SA effects, whereas the degree of self-concept organization of persons varying in PSC accounts for effects due to this variable. These ideas deserve examination in an experiment that, for example, pits levels of PSC crossed by levels of SA. Such a study could produce evidence for the motivational sources of effects for these different self-focus constructs. Dependent measures like latency, extent, and

organization of self-knowledge and description would be especially valuable in this regard (cf. Hull & Levy, 1979; Markus, 1977; Turner, 1978a,b).

In any case, our data regarding attributional patterns of persons varying in levels of PSC show no systematic internality bias due to this variable. Solid explanations of how these results relate to studies of attributional reactions as a function of manipulated self-awareness must wait for experiments like those suggested above. Nevertheless, the present investigation should serve to alert researchers that the effects of situationally manipulated self-focus (self-awareness) may not necessarily be found (or expected) when studying dispositional self-focus (self-consciousness). We have argued that these variables are two different, though related, psychological constructs and that potential similarities and differences should be subjected to closer scrutiny by researchers studying the effects of self-focus on cognitions and behavior.

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Footnotes

1. Buss and Scheier are presumably identifying some enduring characteristics in the psychology of the high PSC person; that is, across time and most situations, high PSC individuals should attribute their positive and negative outcomes internally. If we can assume that any one person does not cause all of their outcomes, then it is probably safe to label this effect as an attribution error. It is important, however, to distinguish between a bias and an error. Kruglanski & Ajzen (1983), for example have suggested that bias may be defined as a subjective tendency to prefer one cognition or conclusion over possible alternatives. They define an error as an inconsistency between a hypothesis and one or more propositions so strongly believed in as to be considered as facts. Since we do not know what the veridical attribution was in the Buss and Scheier study, it probably more fair to characterize subjects' reactions as a bias instead of an error (cf. Funder, 1982; Harvey, Town, & Yarkin, 1981). Since attributions are most commonly self-serving in form (Arkin et al., 1980; Weary-Bradley, 1978; Zuckerman, 1979), and since the attributions of high PSC persons show a systematically different pattern, a bias appears to be occurring.

2. The possibility that a mirror could induce public self-awareness has been suggested by Buss (1980, p.31). While he contended that only large mirrors would induce the public self-aware state, the assumption that the smaller type of mirror commonly employed in self-awareness studies only induces private self-awareness has not been empirically tested. Carver & Scheier (1978) conducted several studies that they conclude validate the use of a mirror as a manipulation of "private" self-awareness. We do not take exception to these data; we do believe that a mirror induces a private form of self-awareness. We also believe, however, that the mirror may produce a public form of self-awareness (cf. Hull & Levy, 1979). Although this hypothesis was testable in the data produced by Carver & Scheier (1978), such an analysis was not conducted (their statements to the contrary notwithstanding, cf. Carver & Scheier, 1977).

3. This carry-over effect is not very likely since the attributional bias effect posited by Buss and Scheier explicitly disregards outcome of the hypothetical situations. Nevertheless, we thought that experimental manipulation of outcome valence would eliminate this explanation of further null results that may result, regardless of its a priori low probability of occurrence.

4. We also used the lower and upper 10% of PSC scores to determine our low and high PSC groups and found identical effects throughout.

5. Other schemes were used to define a positive or negative outcome for subjects, but these produced essentially the same results. For example, we used the top and bottom third of the distribution of exam scores to define a positive or negative outcome. The only difference between the analysis using this scheme and the one reported here was stronger effects on the dependent measures due to outcome. Likewise, similar effects were noted when we analyzed the data using the top and bottom 10% of the exam scores

to define outcome.

6. One subject did not complete this question and thus was dropped from these subjective outcome analyses. Also, once again, other schemes that were used to define a positive or negative outcome for subjects produced the same results.

7. Even though the direction of the results for the internal attribution measure in Study 3 followed the self-serving bias effect found in Study 1 and Study 2, it did not reach statistical significance. The control and stability attribution measures, however, did produce significant self-serving bias effects.

8. We computed the z-test for the meta-analysis in several ways. Since study 3 provided four entries into this test, and since these entries were not independent, we conducted a meta-analysis using only one entry for Study 3. The four separate entries were averaged together and this value was used as the z-value entry for Study 3. The overall z-test, however, was still not significant, $Z = .56$. Furthermore, an argument could be made that Studies 1 through 3 are themselves not independent of one another since they were all produced in our laboratory; this fact may produce non-independence of studies (cf. Rosenthal, 1978; 1979). To address this criticism, we averaged all the entries into the meta-analysis from Studies 1 - 3 and used this average as one entry into a meta-analysis. Even using this strict criterion, however, the overall z-test for the meta-analysis was nonsignificant, $Z = 1.08$.

9. In drawing these conclusions we do not mean to imply that all dispositional variables are unrelated to attributions. Indeed, the influence of a variety of dispositional variables, including self-esteem (Ickes & Layden, 1978), depression (Golin et al., 1981), and achievement motivation (Bar-Tal & Frieze, 1977), has been documented. Furthermore, our conclusions do not extend to the potential effects of public self-consciousness on attributions (cf. Buss & Scheier, 1976; Fenigstein, 1979). Since public self-consciousness is the degree to which persons recognize and are concerned about perceptions of others, such self-presentational concern might make them more likely to exhibit a self-serving attribution bias (cf. Weary-Bradley, 1978). This prediction deserves systematic research attention.

Table 1

Self-Attribution by Experimental Condition For Study One

Level of PSC	Positive Outcome	Negative Outcome
Low PSC (N = 40)		
$\bar{M}$	65.05	44.95
S.D.	11.78	17.22
High PSC (N = 40)		
$\bar{M}$	64.50	43.83
S.D.	9.64	16.07

Note: $\bar{M}$ = mean, S.D. = standard deviation. A higher number indicates more self-attribution.

TABLE 2

Attributions by Experimental Condition for Study Two

Attribution Measures	Low PSC		High PSC	
	Failure (N = 32)	Success (N = 30)	Failure (N = 30)	Success (N = 26)
Internality Dimension				
Self-Attribution	3.59 (1.60)	2.12 (1.17)	3.47 (1.63)	2.19 (1.06)
Other-Attribution	3.34 (1.64)	2.20 (1.32)	2.97 (1.56)	2.08 (.86)
Stability Dimension				
Self-Attribution	3.28 (1.22)	4.83 (1.12)	3.43 (1.33)	4.92 (1.01)
Other-Attribution	2.84 (1.29)	5.10 (1.12)	2.87 (1.40)	5.35 (.80)

Note: Standard deviations appear in parentheses. Scale endpoints are as follows: Internality (1 = internal, 7 = external), and Stability (1 = unstable, 7 = stable).

Table 3

Attributional Reactions By Experimental Condition For Study Three

Independent Variables	Dependent Variables: Internality		Control		Stability	
	$\bar{M}$	S.D.	$\bar{M}$	S.D.	$\bar{M}$	S.D.
Objectively Defined Outcome						
Failure						
Low PSC (N = 27)	2.35	1.03	2.39	1.08	3.96	1.11
High PSC (N = 25)	2.42	1.43	2.95	1.39	3.63	1.38
Success						
Low PSC (N = 19)	1.80	0.94	1.93	1.10	2.53	1.25
High PSC (N = 30)	2.25	1.18	2.18	1.29	2.64	1.34
Subjectively Defined Outcome						
Failure						
Low PSC (N = 26)	2.30	1.03	2.52	1.09	3.74	1.23
High PSC (N = 29)	2.62	1.45	2.90	1.47	3.66	1.26
Success						
Low PSC (N = 19)	2.11	1.10	1.90	1.15	2.84	1.26
High PSC (N = 26)	2.19	1.10	2.23	1.18	2.62	1.33

Note: PSC is an abbreviation for private self-consciousness. Scale endpoints are as follows: Internality (1=internal, 5=external), Control (1=controllable, 5=uncontrollable), Stability (1=stable, 5=unstable).

Table 4

Meta-Analysis of the Relation Between

Private Self-Consciousness and Self-Attribution

Study Entry in Meta-Analysis	Statistics For Each Study			
	F-Ratio	df	Z	r
Buss & Scheier (1976)	10.30	49	+2.92	.417
Study 1	.13	78	+0.35	.036
Study 2	.41	114	+0.64	.060
Study 3 (O_1)	.91	97	-0.95	-.096
Study 3 (O_2)	2.29	97	-1.50	-.152
Study 3 (S_1)	1.75	96	-1.31	-.134
Study 3 (S_2)	2.17	96	-1.46	-.149

Note: Study 1 - 3 refers to the research reported in the present paper. Study 3 contributes 4 entries into the meta-analysis: two measures of internality of attribution (estimate of internality & control) were analyzed for both objectively (O_1 & O_2) and subjectively (S_1 & S_2) defined outcome. (Footnote 8 presents the analyses of Study 3 as but 1 entry into the meta-analysis.)